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SECTION 1: INTRODUCTION

1.1 PURPOSE OF THIS TECHNICAL SUPPORT DOCUMENT

This Technical Support Document (TSD) is intended to provide information for the Bay jurisdictions to use during their development of water quality standards for aquatic life protection based on EPA's criteria guidance for dissolved oxygen (DO), clarity, and chlorophyll *a*. Part of the jurisdictions' water quality standards development process may be to conduct Use Attainability Analyses (UAAs).¹ The information contained herein can be used to assist the states in development of their individual UAAs and serve as a basis for the State-specific documents that will be initiated after the revised criteria for the Chesapeake Bay are published by EPA in April 2003. While a UAA is traditionally a process conducted independently by a state, the multi-stakeholder body guiding the development of the criteria, the Water Quality Steering Committee (WQSC), determined that it would be helpful for the Chesapeake Bay Program to provide information on a watershed-wide scale to promote coordination and consistency across all jurisdictions. This TSD is not a regulation or a mandatory requirement. It is a compilation of basin-wide guidance on UAA related analyses and was assembled collaboratively by all the affected jurisdictions. EPA encourages the jurisdictions to use the information in this document and, when appropriate, to perform additional analyses that are tailored to each jurisdiction during their respective water quality standards development process.

Specifically, the purpose of this TSD is the following:

- C Document why it appears that current designated uses for aquatic life protection cannot be met in all parts of the Chesapeake Bay and its tidal tributaries,
- C Develop a nutrient and sediment load reduction scenario to represent "human caused conditions that cannot be remedied",
- C Show that the new and refined designated uses can potentially be attained, and
- C Provide technical background information for the Bay jurisdictions to use in their own UAAs.

This TSD does not present final conclusions on whether the proposed designated uses are attainable in specific areas; that is a State decision. It does conclude that 1) a revision of the current uses is justified, and 2) that the new and refined proposed uses are viable in many areas of the Bay. Furthermore, it should be noted that this TSD provides information generated at the time of this draft publication. The analyses presented herein are works in progress and final results will be presented by April 2003. In particular, further work is being undertaken regarding

¹ The jurisdictions that will be developing revised water quality standards in response to this effort are those with tidal Bay waters including Maryland, Virginia, the District of Columbia, and Delaware.

sediment. The analyses presented in this TSD were directed by the WQSC's Use Attainability Workgroup (UAA Workgroup).

The information in this TSD is laid out in two parts:

- C Part I: Providing justification for why the current designated uses should be changed, and
- C Part II: Providing justification for the new and refined designated uses.

Part I is presented in Section 3, which illustrates that two factors, natural conditions and human caused conditions that cannot be remedied, may provide sufficient justification for showing why the current aquatic life protection designated uses (DO criteria) cannot be met in certain portions of the Chesapeake Bay and its tidal tributaries. Part II is presented in Sections 4, 5 and 6. Section 4 provides information that jurisdictions may decide to use to develop the *new and refined* designated uses (or habitat zones) based on the types and needs of the living resources that inhabit the different parts of the Bay, as well as the bathymetry, hydrology, physical features and natural stratification of the Bay tidal waters. The *refined* uses are all subcategories of aquatic life protection, protected by new DO and, where appropriate, chlorophyll *a* criteria. The *new* use is protection of underwater bay grasses, or submerged aquatic vegetation (SAV), protected by new criteria for water clarity. Section 4 includes information regarding the geographic and temporal extent (or "boundaries") of the new and refined designated uses and will also show that the new and refined designated uses meet the requirement to protect existing uses since November 1975.

Additionally, this document provides information pertaining to the attainability of these new and refined uses. Section 5 presents an assessment of the *technological* attainability by comparing water quality responses of four level-of effort-scenarios (or tiers) to the nutrient and sediment reductions accomplished at each level. The water quality responses are summarized in a series of "attainability tables" which show where in the Bay attainment for DO is achieved for each of the new and refined designated uses.

Section 6 provides information regarding cost estimates for each of these tiers. This information is used as input to a screening level economic impacts analyses, the methods and results of which are also provided in Section 6 to assist the jurisdictions with their own assessment of substantial and widespread social and economic impacts during the development of their water quality standards.

At this basin wide level of analysis, economic impacts are not used to delineate the boundaries of the designated uses. Rather, it will be up to the individual jurisdictions, when conducting their own UAA, to determine where there may be substantial and widespread social and economic impacts and adjust their final use boundary delineations as a result. The economic information and methodology provided herein is intended only to assist the states with that decision.

1.2. BACKGROUND—WHY THIS TSD IS BEING DEVELOPED

The U.S. Environmental Protection Agency (EPA), the governors of Maryland, Virginia and Pennsylvania; the Mayor of the District of Columbia; and the Chair of a tri-state legislative body known as the Chesapeake Bay Commission signed the *Chesapeake Bay Agreement* in 1987, which among other things, stated that a 40% reduction of nutrients (nitrogen and phosphorus) entering the Bay would be necessary to restore its health. This goal targeted a 40% reduction by the year 2000 of controllable nutrient loads from point and nonpoint sources in the entire 64,000-square-mile Bay watershed from levels being discharged in 1985, and provided that once achieved, this level would be maintained thereafter. Implementation of this goal was conducted in a cooperative manner including actions under state laws primarily for best management practice (BMP) implementation, and voluntary reductions from both point and nonpoint sources encouraged by cost share grant programs.

Yet in spite of these efforts, nutrient related water quality problems have persisted as illustrated in Section 2 of this TSD. Maryland's portion of the Bay and its tidal tributaries were listed on its 1996 and 1998 Clean Water Act (CWA) section 303(d) lists of impaired waters. In May 1999, EPA Region III included Virginia's portion of the Chesapeake Bay and portions of several tidal tributaries on Virginia's 1998 CWA Section 303(d) list. Shortly thereafter, a new agreement, entitled *Chesapeake 2000* (generally referred to as "C2K") was developed in response to a comprehensive assessment of the Bay's restoration needs and delineated an ambitious list of new restoration commitments. C2K specifies a goal to remove the Bay and its tidal waters from the list of impaired water bodies for nutrients and sediments by 2010. Thus, development of a total maximum daily load (TMDL) for the Chesapeake Bay will be delayed until 2010 anticipating that the Bay partners can achieve water quality standards by that time using a cooperative approach, thus making a TMDL unnecessary.

C2K lists the following specific actions as steps to achieve its water quality goals for nutrients and sediment:

1. By 2001, define water quality conditions (i.e., criteria) necessary to protect aquatic living resources and then assign load reductions for nitrogen, phosphorus and sediment to each major tributary;
2. By 2002, complete a public process to develop and begin implementation of revised Tributary Strategies to achieve and maintain the assigned loading goals;
3. By 2003, the jurisdictions with tidal waters will use their best efforts to adopt new or revised water quality standards consistent with the defined water quality conditions.

Note that, though the actions still apply, the schedule has changed; the current schedule is:

- C Final definitions of water quality conditions (i.e., criteria)—April 2003,
- C Revisions to tributary strategies—2003 to 2004, and
- C Adoption of revised water quality standards—2004 to 2005.

To implement and coordinate the above actions, the Bay Program has formed a WQSC composed of upper management level representatives from a wide range of stakeholders including EPA, state environmental and agricultural agencies, the environmental community, and wastewater treatment operators.

Water quality standards consist of 1) designated uses for the water body, 2) water quality criteria to protect those uses, and 3) an anti-degradation policy. EPA, under direction from the Chesapeake Bay Program's WQSC, will publish revised criteria for DO, and new criteria for water clarity and chlorophyll *a* (U.S. EPA, 2003). The general aquatic life protection use, found in current State standards, is being refined and sub-categorized. Portions of the revised criteria are either equal, more, or less stringent than the current DO criteria. A state must submit a UAA whenever it proposes to adopt subcategories of a designated use requiring less stringent criteria. (40 CFR 130.10(j)). Each jurisdiction that currently lists Chesapeake Bay tidal waters as State waters (Maryland, Virginia, Delaware, and the District of Columbia) is responsible for submitting its own UAA to justify changes to their State water quality standards for the Bay tidal waters. This TSD serves as information the jurisdictions may use when they conduct their own UAAs.

1.2 APPROACH FOR THIS TECHNICAL SUPPORT DOCUMENT

As defined in the Water Quality Standards Regulation (40 CFR 131.3), a UAA is:

..... a structured scientific assessment of the factors affecting the attainment of a use which may include physical, chemical, biological, and economic factors as described in section 131.10(g).

The guidance in this document lays out a two pronged approach for conducting this scientific assessment:

- C Part I: Providing justification for why the current designated uses should be changed, and
- C Part II: Providing justification for the new and refined designated uses.

1.2.1 Part I of TSD

A UAA is required according to Section 131.10 (j) of the EPA Water Quality Standards regulations when:

1. The State designates or has designated uses that do not include the uses specified in section 101(a)(2) of the Act; or

2. The State wishes to remove a designated use that is specified in section 101(a)(2) of the Act or adopt subcategories of uses specified in section 101(a)(2) that require less stringent criteria.²

The focus of this TSD is on the current designated uses in Maryland and Virginia Chesapeake Bay waters for the protection of aquatic life.³ Part I of this TSD will involve showing why these current designated uses in Maryland and Virginia with corresponding DO criteria of 4 and 5 mg/l are not achievable in all portions of the water column. In conducting a UAA, the state must be able to demonstrate that attaining the designated use is not feasible due to one or more of the six factors in 131.10(g):

1. Naturally occurring pollutant concentrations prevent the attainment of the use
2. Natural, ephemeral, intermittent or low-flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating state water conservation requirements to enable uses to be met
3. Human-caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place
4. Dams, diversions or other types of hydrologic modifications preclude the attainment of the use, and it is not feasible to restore the water body to its original condition or to operate such modification in a way that would result in the attainment of the use
5. Physical conditions related to the natural features of the water body, such as the lack of a proper substrate, cover, flow, depth, pools, riffles and the like, unrelated to chemical water quality, preclude attainment of aquatic life protection uses
6. Controls more stringent than those required by sections 301(b)(1)(A) and (B) and 306 of the Act would result in substantial and widespread economic and social impact.

Part I of this TSD, as presented in Section 3, will rely most heavily on factors 1 and 3 above in showing why the current uses cannot be met in certain portions of the Bay.

²Section 101(a)(2) Federal Water Pollution Control Act states that “it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water be achieved by July 1, 1983.”

³Specifically, all state waters in Maryland are protected for Use I or water contact recreation and protection of aquatic life. All state waters in Virginia are designated for the following uses: “recreational uses, e.g., swimming and boating; the propagation and growth of a balanced, indigenous population of aquatic life, including game fish which might reasonably be expected to inhabit them; wildlife; and the production of edible and marketable natural resources, e.g., fish and shellfish.”

1.2.2 Part II of TSD

A UAA providing justification for new or refined designated uses, particularly for areas where the uses will be more stringent than current ones, is, according to a strict interpretation of the regulations, not required, but the Bay Program's WQSC agreed that it is a logical extension of this effort. Part II of this TSD will provide a scientific analysis of what the appropriate new and refined designated uses should be, based on the types and needs of the living resources that inhabit the different parts of the Bay, as well as the bathymetry, hydrology, physical features (some man induced such as the shipping channels) and natural stratification of the Bay waters.

Current designated uses applied to the Chesapeake Bay and its tidal tributaries do not fully reflect natural conditions, and are too broad in their definition of use to support adoption of more habitat-specific aquatic life criteria. Furthermore, the current designated uses change across jurisdictional borders within the same water body. It was determined by the Chesapeake Bay Program watershed partners that the underlying tidal water designated uses must be refined to better reflect desired and attainable Chesapeake Bay water quality conditions.

The Chesapeake Bay Program is proposing a *new* designated use to protect underwater bay grasses and four *refined subcategories* of the current broad aquatic life designated uses. The four refined designated use subcategories, derived largely to address seasonally distinct habitats and living resource communities with widely varying DO requirements, are:

- C Migratory fish spawning and nursery designated use;
- C Open-water fish and shellfish designated use;
- C Deep-water seasonal fish and shellfish designated use; and
- C Deep-channel seasonal refuge designated use.

The proposed new designated use is termed the shallow-water bay grass designated use, which is a seasonal overlay on that part of the year-round open-water use which borders the land along the tidal portions of Chesapeake Bay and its tributaries.

The factors used to demonstrate why current designated uses are unattainable can also be applied in the development of the new and refined uses. Factors 1 (natural conditions) and 3 (human caused conditions that can't be remedied) will be used to determine appropriate boundaries for the new and refined uses as an inherent element of Part II of this TSD. Additionally, Part II will take into consideration factors 4 and 5 listed above as part of the justification for delineating the boundaries for the new and refined uses. This TSD will show that there are certain hydrologic and physical features that exist in the Bay today, some natural, some man-made such as the shipping channels, which influence the horizontal as well as vertical extent of the designated use boundaries.

The five refined designated uses were derived to reflect the habitats of an array of recreationally, commercially and ecologically important species. The supporting prey communities were given full consideration along with the "target species" in defining the designated uses. The Chesapeake Bay water quality criteria derived to protect the designated uses were based on

effects data from a wide array of species and biological communities to capture the range of sensitivity of the thousands of aquatic species inhabiting Chesapeake Bay and tidal tributary estuarine habitats.

DO criteria will apply to each of these 4 refined designated use subcategories at different ambient concentrations according to each of the use protection needs. Water clarity criteria will specifically apply to the shallow water use, and will vary according to salinity in different portions of the Bay. Additionally, new chlorophyll *a* criteria will apply to the open water fish and shellfish designated use where necessary to address harmful algal growth. Section 4 defines the five new and refined designated uses, the rationale for their selection as unique new or subcategories of current designated uses, and the boundaries between migratory spawning and nursery, shallow-water, open-water, deep-water and deep-channel designated use habitats.

After defining the new and refined designated uses, Section 4 also addresses a key UAA question: Do these new and refined designated uses meet existing uses? Existing uses are those that have been attained at any time since November 28, 1975, when the CWA regulations regarding use designation were established. This TSD will show that existing uses are met because the refined use boundaries are based on the best conditions that existed since 1975. Thus, the proposed new and refined designated uses meet the requirement to protect existing uses since November 1975.

Sections 5 and 6 address the attainability of the new and refined designated uses. Whether or not the new and refined designated uses are attainable is a challenging question because there is no precise approach to answering it, particularly for an area as large as the Chesapeake Bay watershed, with its heterogeneous habitats (deep, shallow, muddy, sandy, wave swept, quiet, well-flushed, poorly-flushed, etc.) and various types and locations of pollutant point and nonpoint sources. The concept of attainability includes technological, economic and even political and legal perspectives. This TSD will elaborate to a limited extent on the technological, economic and legal viewpoints of attainability; however, it will ultimately be up to the jurisdictions to make their final determinations by applying information tailored to their respective dominions. Attainability analyses provided herein will only pertain to DO for the 4 refined subcategories of the current designated aquatic life uses. Attainability regarding the proposed clarity criteria for the new use to protect shallow water bay grasses, is not assessed in this TSD.

From a legal perspective, “existing uses” are, by definition, attainable. By regulation, they must be protected by designated uses in water quality standards (40 CFR 131.10(g), 131.10(h)(1) and 131.10(i)). Further, at a minimum, uses are considered attainable if they can be achieved by implementing effluent limits required under Sections 301(b) and 306 of the CWA and by implementing cost-effective and reasonable BMPs for nonpoint source control. (40 CFR 131.10(h)(2)). Thus, existing uses, technology and BMP provisions establish the basic regulatory threshold test for what an “attainable” use of a water body is and thus what the **minimum** use designation for a particular water body must be.

A valuable tool that the Bay Program has devised for exploring attainability from a technological perspective is the development of a range of level-of-effort scenarios that represent varying degrees of nutrient and sediment load reduction through BMPs and wastewater treatment upgrades. These level-of-effort scenarios range from Tier 1, which represents current level of implementation throughout the watershed plus regulatory requirements implemented through the year 2010 up to a limit of technology (LOT) scenario referred to as E3 or “everything by everyone everywhere” which is acknowledged to not be physically plausible in all cases. Two other scenarios, Tier 2 and Tier 3, were also developed to represent intermediate levels between Tier 1 and E3. (See Section 5 for a detailed description of the tiers). Each tier represents a nitrogen, phosphorus and sediment load reduction determined by the technologies and levels of implementation assigned to the tier.⁴ These tiers are artificial constructs of technological levels of effort and do not represent actual programs the jurisdictions will eventually implement to meet the water quality standards. Rather, these tiers are an *assessment tool* to determine potential load reductions achievable by various levels of technological effort and were modeled to determine water quality responses. Section 5 provides the results of the water quality model analyses for DO by tier, presented in a series of “attainability tables”, which estimate the level of attainment achieved by the designated use boundaries. This analysis will show that attainment is realized for most segments of the Bay at E3. However, a few segments, particularly some deep water uses in certain mainstem segments, do not achieve full attainment at Tier 3.

The WQSC proposes to use the E3 model scenario to represent one of the use removal factors, that being human caused conditions that cannot be remedied. There is agreement that reductions at E3 are generally not achievable and that the load reductions represented by Tier 3 generally are technologically achievable. Therefore, if a proposed use can be attained at load reductions less than E3, that use should be designated unless the jurisdictions, through their own analyses, show that human caused conditions prevent attainment of the use and cannot be remedied, or they explain why the uses cannot be attained based on substantial and widespread economic impacts, or other factors in 40 CFR 131.10(g). However, the analyses in this TSD show that the new designated uses can potentially be attained in parts of the Bay and its tidal tributaries.

EPA solicits comment on whether or not the load reductions associated with E3 are the appropriate representation of human caused conditions that cannot be remedied.

The sixth factor to consider when conducting a UAA listed under Section 131.10(g), “Controls more stringent than those required by Sections 301(b) and 306 of the Act would result in substantial and widespread economic and social impact” has also been addressed to a limited extent in this analysis. Part I of this TSD, which demonstrates why current designated uses cannot be met, will not require reliance on the substantial and widespread economic and social impact factor as part of the justification to change the use. Conversely, it is a logical question to ask if the new designated uses are affordable. The information provided in this TSD, as directed by the WQSC will not attempt to provide conclusions on affordability. This is because 1) the

⁴ Sediment reduction is only estimated so far as it is incidental to nutrient removal BMPs. Additional sediment reduction BMPs are being evaluated by the Chesapeake Bay Program. These sediment reduction BMPs, their reduction efficiencies and estimates of water quality improvements, will be presented in April 2003.

WQSC judged it premature to specify substantial and widespread economic and social impacts thresholds, 2) on a regional, state or large watershed scale, economic impacts can be mitigated by cost-share, loans, new federal or state funding programs which preclude making definitive economic conclusions at this basin level, and 3) these are State and local decisions on desired water quality and cannot be made final on a regional basis.

However, as presented in Section 6, this TSD will provide cost information, based on the tiers which describe technologies and BMPs that may be necessary to make the reductions to meet the new and refined uses. As also presented in Section 6, this TSD will provide a methodology for, and results of, a broad basin wide screening economic impact analysis, again based on the tiers, to provide the jurisdictions indicator information on ranges of impacts on a county by county basis throughout the watershed. The results of the screening analyses will provide information on where substantial and widespread impacts are unlikely, and where it may be necessary for the jurisdictions to perform more detailed comprehensive economic impact analyses when conducting their own UAAs to determine specific impacts. Additionally, the economic information portrayed in this TSD may be helpful in determining where, and how much, public funding assistance would be most beneficial. Note, that the use boundaries as delineated in this document, were not determined using economic impact information. It will be up to the individual jurisdictions, when conducting their own UAAs, to ultimately determine substantial and widespread economic and social impacts and to set the final use boundary delineations. The economic information provided in this TSD is intended to assist the states with that decision. An example comprehensive economic impact analyses (or “groundtruthing”) is provided in an appendix to this TSD to assist the jurisdictions in developing a methodology for conducting more in depth economic impact analyses. Finally, an example widespread test that was performed on a basin wide basis to determine socioeconomic impacts is summarized in Section 6. This analyses measures changes in the value of regional output, or goods produced, employment as well as wages and income.

1.2.3 Jurisdiction Water Quality Standards and Tributary Strategy Development Process

Upon publication of final EPA water quality criteria guidance for DO, clarity, and chlorophyll *a* in April 2003, the jurisdictions with tidal Bay waters (Delaware, the District of Columbia, Virginia, and Maryland) will initiate their individual water quality standards development and adoption process. In parallel to this effort, all jurisdictions located in the Bay watershed (Delaware, the District of Columbia, Virginia, Maryland, Pennsylvania, West Virginia, and New York) will be involved in determining the nutrient and sediment load reductions necessary to meet these water quality standards, and in developing plans to achieve those reductions. Water quality standards will be developed by 2005. Load reduction plans (referred to as “tributary strategies”) will be completed by 2004, and will thus provide area-specific information which jurisdictions can use in the standards adoption process.

A determination of the nutrient and sediment load reductions necessary to meet the proposed criteria and designated uses is not a part of this TSD; however, simultaneous efforts are ongoing to ascertain the load allocations, or load caps, each jurisdiction will need to accept. Plans are to

develop such allocations by April 2003, which will be expressed as annual loadings for nitrogen, sediment and phosphorus. These loads will be allocated to each of the nine major basins in the Chesapeake Bay and each basin's allocation will further be allocated among all state jurisdictions within the basin. The jurisdictions will then develop tributary strategies for each of the basin-jurisdiction allocations.

It will be during the water quality standards and tributary strategy development process that real nutrient and sediment load reduction plans will be determined by jurisdiction (as opposed to the artificial tiers presented herein), and *actual* costs and resulting substantial and widespread social and economic impacts will be assessed. After the water quality standards are finally adopted, allocations may need to be adjusted accordingly.

1.2.4 Additional Analyses That Will Be Performed Before April 2003

In addition to technological capability and substantial and widespread economic and social impacts, there are other important factors that influence the ability to achieve certain levels of water quality response and the Bay Program is only beginning to understand their role in defining attainability. Some examples of areas that are currently under exploration, but will be briefly described in this TSD, include the following:

- C An analysis of the relative influence each major basin has on the Bay and on other major tributaries,
- C Sediment reduction BMPs and the additional water quality improvements they may afford, and
- C Refinements in attainability analyses.

Bay Program scientists and modelers will be exploring how these factors affect water quality and use attainment further during the public comment period. Results of these investigations will be provided for the final publication in April 2003.

1.2.5 Environmental Benefit Analysis

Certainly, one intuitively understands the environmental improvements, in terms of elements including living resource response, recreational opportunities, aesthetic enjoyment, commercial fisheries, that can be gained from restoring the Chesapeake Bay. The WQSC directed the jurisdictions, in the development of this UAA work, to prepare a qualitative analysis of the benefits derived from water quality improvements resulting from nutrient and sediment reductions. Quantitative basin-wide information is not available related to environmental benefits, however, an appendix to this TSD provides the Program's best attempt to date at addressing this subject matter qualitatively.

1.3 WHAT ARE THE CURRENT DESIGNATED USES THAT WILL BE REFINED?

Virginia, Maryland, Delaware and the District of Columbia have identified Chesapeake Bay tidal waters as “State Waters.” A description of the current designated uses for the Chesapeake Bay tidal waters for these jurisdictions, as it relates to aquatic life protection and the applicable nutrient enrichment related standards, is provided below.

Exhibit 1-1: Summary of Designated Uses for States in the Watershed

State	Current Designated Use for Chesapeake Bay	Current Applicable Criteria
MD	<ul style="list-style-type: none"> Use II (Shellfish harvesting waters)—Chesapeake Bay proper Use I (water contact recreation, protection of aquatic life)—All surface waters 	<ul style="list-style-type: none"> DO \$5 mg/l at all times
VA	<ul style="list-style-type: none"> Class II (estuarine waters) for tidal water—Coastal zone to fall line—primary and secondary contact recreation, fish and shellfish consumption, aquatic life and wildlife <p>“All state waters, including wetlands, are designated for the following uses: recreational uses, e.g., swimming and boating; the propagation and growth of a balanced, indigenous population of aquatic life, including game fish which might reasonably be expected to inhabit them; wildlife; and the production of edible and marketable natural resources, e.g., fish and shellfish.”</p>	<ul style="list-style-type: none"> DO \$4 mg/l minimum DO \$5 mg/l daily average
DE	<ul style="list-style-type: none"> Chesapeake Drainage System, Choptank River, Marshyhope Creek—Industrial water supply, primary contact recreation, secondary contact recreation, fish + aquatic life + wildlife, agriculture water supply Broad Creek, Nanticoke River—Same designated uses as above with the exception that these basins are also classified as “waters of exceptional recreational and ecological significance”(ERES waters) 	<ul style="list-style-type: none"> DO \$5.0 mg/l average (marine) for June to September DO \$ 5.5 mg/l (freshwater) for June to September DO \$4.0 mg/l minimum For ERES waters, If natural conditions preclude attainment of DO criteria, reduction in DO levels as a result of human activities shall be prohibited
DC	<ul style="list-style-type: none"> For Potomac—Class A (primary contact recreation) ,B (primary contact recreation and aesthetics), C (protection and propogation of fish, shellfish, and wildlife), D (consumption of fish and shellfish), E (Navigation) 	<ul style="list-style-type: none"> DO \$5 mg/l minimum daily average DO \$5 mg/l minimum (March--June) DO \$4 mg/l minimum (July--February)